

# Automated Service Discovery using Autonomous Control Technologies, Phase I

Completed Technology Project (2004 - 2004)



## Project Introduction

With the advent of mobile commerce technologies, the realization of pervasive computing and the formation of ad-hoc networks can be leveraged to the benefit of the NASA Spaceports in several technical areas. The Automated Service Discovery (ASD) architecture will allow a portable real-time Expert System to be used to aid in the Service Discovery, management of communications links, and fault detection isolation and recovery for vehicle health management. The ASD system will allow significant cost reductions for fielding and maintaining systems at the Spaceports. Flight systems can save weight by relying on encrypted wireless links rather than connections to a wiring harness for data transfer. Ground based systems can reconfigure on the fly using wireless and connection oriented ad-hoc networks. This proposal also addresses the need for a standardized command, control and monitor system for ground and space infrastructure. ASD will use the same Expert System for execution of the ASD algorithms to derive suggestions for least-cost paths for data connectivity. The ASD system will provide a capability for the real-time Expert System to query for service capabilities and adjust goals and constraints based on available resources. The ASD implementation will be machine, language, and operating system neutral.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Kennedy Space Center (KSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Interface and Control Systems Inc	Supporting Organization	Industry	Columbia, Maryland

Primary U.S. Work Locations	
Florida	Maryland

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Brian A Buckley

## Technology Areas

**Primary:**

- TX10 Autonomous Systems
  - └ TX10.2 Reasoning and Acting
    - └ TX10.2.2 Activity and Resource Planning and Scheduling